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AN EXPLORATORY STUDY OF NON-ENGLISH SPEAKING HOMES AND ACADEMIC PERFORMANCE.

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THE LANGUAGE-RELATED DIFFICULTIES OF PUERTO RICAN CHILDREN IN NEW YORK PUBLIC SCHOOLS WERE STUDIED BY A REANALYSIS OF DATA PREVIOUSLY COLLECTED IN A U.S. OFFICE OF EDUCATION (USOE) SURVEY. THIS SPANISH-SPEAKING ETHNIC GROUP WAS STUDIED TO ANSWER TWO QUESTIONS--(1) WHAT IS THE RELATIONSHIP BETWEEN LANGUAGE SPOKEN IN THE HOME AND OTHER ASPECTS OF ETHNIC BACKGROUND, AND (2) WHAT DIFFERENCES ARE PRESENT AT SEVERAL DIFFERENT GRADE LEVELS IN VOCABULARY TEST SCORES OF PUERTO RICAN CHILDREN FROM CONTRASTING, HOME-LANGUAGE BACKGROUNDS. ANALYSIS OF THE DATA WAS MADE DIFFICULT BY THE APPARENT PRESENCE OF A SUBSTANTIAL AMOUNT OF RESPONSE ERRORS ON SOME IMPORTANT INTERVIEW QUESTIONS. TENTATIVE CONCLUSIONS SUGGESTED BY THE ANALYSIS WERE (1) THE LANGUAGE PATTERN IS NOT VERY CLOSELY LINKED WITH OTHER ATTRIBUTES OF PUERTO RICAN ETHNIC BACKGROUND, (2) WHEN SOME BACKGROUND VARIABLES THAT ARE CONFOUNDED WITH THE LANGUAGE PATTERN ARE TAKEN INTO ACCOUNT, THERE IS LITTLE DIFFERENCE BETWEEN THE AVERAGE TEST SCORES OF THE CHILDREN FROM SPANISH-ENGLISH HOMES AND THE ENGLISH-ONLY HOMES, EXCEPT AT GRADE 1. THE AUTHOR RECOMMENDS FURTHER RESEARCH TO REEXAMINE THE CONCLUSIONS OF THE USOE STUDY USED FOR THIS PROJECT AND THE CONCLUSIONS OF SIMILAR SURVEY DATA COLLECTED FROM DISADVANTAGED ELEMENTARY SCHOOL PUPILS. RELATED STUDIES ARE AA 000 046 AND AA 000 047. (AL)

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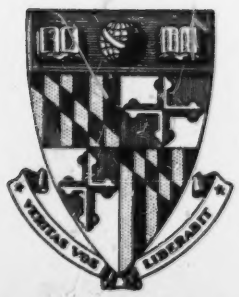

THE JOHNS HOPKINS UNIVERSITY

THE CENTER FOR THE STUDY OF SOCIAL ORGANIZATION OF SCHOOLS

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BACKGROUND OF PROBLEM

One of the major practical problems facing the discipline of education at the moment is that of successfully teaching children from disadvantaged backgrounds. These children include members of several ethnic groups, of which Negroes are the most numerous and presently most vocal. But Negroes are not the only group in this situation, nor are they in every community the most severely disadvantaged. There are two Spanish-speaking ethnic groups who, although far smaller in numbers, have proportionally as severe a disadvantage as all but the very poorest of Negroes. Since the present situation of the Puerto Ricans is most similar to that of previous immigrant ethnic groups, we shall concentrate attention in this paper on them.

A recent national survey by the U.S. Office of Education[1] (hereafter referred to as the EOEO survey) is one of several that have documented the fact of educational deprivation among these groups. One of the major findings presented by that study was that children among the ethnic minorities enter the educational system with a handicap (as indicated by lower test performance) and that this handicap remains undiminished or increases at later grades. The only minority group examined for which this did not hold was the Oriental-Americans.[2] A second finding of interest in the above-mentioned study is that the differences between schools on indices of facilities account for little or none of the differences between the average test scores of their students.[3] But, for the minority groups, although the amount of variance explained by school facilities is still small, it is consistently larger than among the majority.

Like the Negroes, the Puerto Ricans not only obtain lower averages on academic tests, but also are living in a subculture of poverty[4] with a non-urban tradition. They have also been, although probably not as much as the Negro, the objects of prejudice and discrimination. Puerto Ricans are even more recent arrivals in the big cities than are the Negroes, and they have not yet had time to climb the economic ladder in substantial numbers.

Since the Puerto Ricans, like the Negroes, have been made the object of hostility simply for being what they are, it seems useful to consider what it is that serves to identify a person immediately as Puerto Rican, just as the Negro's skin color makes him unmistakably distinguishable. For the Puerto Rican, one way in which ethnicity can be manifested is through spoken language. Various observers have noted that majority persons are highly resentful of the different language that marks the speaker as a "foreigner."[5] Unlike skin color, the language he uses is something an individual can directly control. This makes it worthwhile to examine the relationship between language use and other indicators of ethnic background.

There is also another basis on which language pattern is deserving of investigation. This is the simple effect of lack of acquaintance with the English language as a handicap on academic test performance. The conventional wisdom on this topic is that children who have been reared in homes where a language other than English is dominant will probably perform more poorly on academic tests, especially on tests which depend heavily on language skills, such as vocabulary tests.[6]

With these considerations as a background, we shall deal with two questions. First, does it appear that use of "a language other than English" (which for the Puerto Ricans can be assumed to be Spanish) actually serves as a usable indicator of ethnic identity? Second, what is the relation between various ethnolinguistic patterns and academic test performance at each of several grade levels?

Perhaps the lack of a good English vocabulary, brought about by the home language patterns, should be viewed as not solely a matter of language, but something tightly connected with the ethnic identification of the child. If this were the case, categorizing by language would then lead to a confounding of the effects of straightforward vocabulary deficiency and the social-psychological complex of ethnic identity and self-esteem. For example, those children who score lowest in English vocabulary might be the very ones most tightly integrated in the "barrio" and so might be expected to have fewer anxieties and higher self-esteem. In this case, it might well turn out that children from English-only homes would perform no better than those from Spanish-English homes, since the former group would be handicapped in their learning by alienation from the Puerto Rican community.

With regard to academic performance, several possibilities exist. In light of the general findings of the EOEO study, we might be inclined to expect a pattern of cumulative disadvantage. Disadvantaged children, says the report, tend to fall farther and farther behind the majority, and the smaller amount of English spoken in the home would seem to be a clear additional disadvantage among the Puerto Ricans from such homes. In other words, if the effects of early deprivation are seen as precluding successful utilization of later experience, we would anticipate a cumulative disadvantage here. However, the EOEO report considers this possibility against an alternative[7] model in which the effects of family background are less intense at later grades and concludes that the evidence favors a declining effect of family patterns as the child grows older.

We might mention here an additional motivation to examine the data on the Puerto Ricans from the EOEO survey. If it should turn out that the Spanish-English speaking Puerto Rican children do overcome an initial handicap, this might be due not to lower self-esteem among the English-only Puerto Rican group,

but to an effective program in the schools which successfully reaches and educates the linguistically handicapped. If so, the presence and results of such a program would provide evidence that, at least in certain circumstances, the schools are effective.

OBJECTIVES

With these questions in mind, it was decided to undertake a reanalysis of data collected by the EOEO survey. This reanalysis confined itself to the Puerto Rican respondents from among all those surveyed. In the section of the published report which deals with this same general topic, there is noted (p.524) the apparent presence of a response error bias in the answering of the question on Puerto Rican ethnicity, especially at the third and sixth grades. This bias produced serious distortion in the geographic distribution of the self-identified Puerto Rican respondents. Accordingly, to reduce the magnitude of this response error bias, it was decided to include only respondents from the New York City school system in the reanalysis. This use of a single school system should also reduce the irrelevant variation in test scores which would arise from different community and school system characteristics. It should be noted that the schools used in this reanalysis are not intended to be a representative sample of the New York City schools, and so no inferences from this analysis should be drawn to the actual situation in the entire city of New York. The focus of attention in this paper is on determining the relations which hold between certain sets of variables, not on the distributions of these variables in some population.

One of the questions to be discussed is the relation between language pattern and ethnicity. The other is the effect of linguistic environment on academic test performance. In later sections of the paper the data and procedures used to pursue these questions will be described.

RESPONSE ERROR AND BIAS

Before proceeding into a detailed discussion of the items and procedures used, it seems desirable to discuss briefly the methodological problem in which a small degree of response error can produce large biases. Suppose, for example, that 2% of the obtained sample in some hypothetical survey actually are Puerto Rican. Suppose also that 2% of the obtained sample have answered the question, "Are you a Puerto Rican?" completely at random. Then among this 2% of individuals who answer randomly, we can expect that one-half (1%) will say yes and one-half (1%) will say no. Assume also that those who are truly Puerto Rican have the same probability of answering at random as those who are not Puerto Rican. Under these circumstances, if the total

obtained sample is 10,000 respondents, 200 really are Puerto Rican. Of these 200, there will be 196 who answer the question deliberately and correctly. Of the 4 Puerto Ricans who answer at random, 2 will answer correctly. But there will also be 196 non-Puerto Ricans who answer the question at random. Of these, we can expect that 98 will erroneously classify themselves as Puerto Rican. Thus, if response to the question were used to define the Puerto Rican subgroup for analysis, this group would apparently contain 296 cases. But of this 296, approximately 1/3 (98) would be misclassified. Note that under these same conditions, less than 1% of those giving "non-Puerto Rican" as a response (2 out of 9704) would be erroneously classified.

The seriousness of the distortion is the result of the extremely small fraction of the sample which is truly Puerto Rican. If, for example, the sample of 10,000 actually contained 3,200 Puerto Ricans, and the other conditions remained as before, the apparent number of Puerto Ricans would be 3236. Of these, 3,168 would actually be Puerto Ricans and 68 would be non-Puerto Ricans who randomly answered yes. So, when the proportion of Puerto Ricans is reasonably large, the seriousness of the distortion is greatly reduced -- from about 33% to about 2%.

Since New York City was the only geographic area where Puerto Ricans constitute a sizeable fraction of the school population, and where our survey also had a large number of respondents, it was decided to use only schools in the New York City system. In addition to reducing the seriousness of the distortion produced by response error, it was felt that in New York, response error was less likely to occur than it would be in the country altogether. This is because the students in New York schools are more likely than those in, say, rural Mississippi, to actually understand what a Puerto Rican is, since they have had more contact with the term and its referent. Also, since response errors probably will decrease as reading skill increases, the New York school, because of its higher average reading level, should provide better data than a southern rural school.

In addition to the sort of response error bias discussed thus far, there is a second way in which response error could affect the results. Students are also subject to response error in their answer to the question about language spoken in the home. Through an argument analogous to that above, it can be seen that if a large majority of the Puerto Rican homes do actually speak Spanish frequently, and if there is response error on this question, then the English-only category will contain a disproportionally high fraction of persons who made a response error. Moreover, with this particular study, the problem is aggravated by the fact that it is *a priori* likely that children who are more linguistically handicapped (i.e., generally those from Spanish-English rather than English-only homes) are more susceptible to response errors on either of the two questions we have mentioned. Thus, we may not have counted some of the most handicapped persons at all, though they actually are Puerto

Ricans, and among those we did count as Puerto Ricans, we may have classified many of the most handicapped as from English-only homes when in fact they are not.

The discussion thus far has neglected any consideration of reasons why a response which misleads us might be deliberately (though perhaps innocently) made by a child. There are many such possibilities,[8] but individual discussion of each would only emphasize what is already clear enough -- that there is a potentially serious problem, even in this reanalysis, as to the extent of distortion in the results from response error bias. The mechanisms which have been described constitute an artifact which would tend to produce an observation of lower test scores among the respondents who are self-classified as from English-only homes, given only the quite plausible additional assumption that those who err in responding to the questionnaire items are also those who are liklely to err in responding to the test items.

ETHNIC IDENTITY

We can obtain an approximate indication of the extent of the latter type of response error (i.e., on the item about language used in the home) while examining the interrelationships among the items relevant to ethnic origin and identity. Incidentally, the question for language used in the home was written as follows: "Does anyone in your home speak a language other than English most of the time? (German, Italian, Spanish, etc.)." Response possibilities were "yes" and "no." This phrasing is hardly optimum for our purposes. A yes or no response leaves considerable uncertainty as to just how much of the home verbal experience is in English and how much in Spanish. Moreover, considering its phrasing, one would expect a high proportion of "yes" responses among Puerto Ricans, thus magnifying any bias due to response error.[9]

In addition to the question on home language, students were also asked to give their own and their mother's place of birth,[10] their race (White, Negro, American Indian, Oriental, Other), and, in the ninth and twelfth grades, where they had spent most of their lives. They were also asked about the language they themselves used outside of school.

The argument used in examining the relation between home language and the other items relevant to ethnicity is as follows. If high associations between the items are found, this will indicate that response error is not contributing a sizeable distortion, but at the same time any differences we may find in test scores are not solely the result of language experience but rather of a whole complex of ethnic origin and identity. On the other hand, low associations between the items would indicate a possibly large response error, but at the same time suggest that language pattern may be relatively independent of these other ethnicity items.

(Table 1 about here)

Examination of the data in Table 1A indicates that there is no noticeable relationship, except at the twelfth grade, between child's place of birth and the Spanish-English/English-only dichotomy. When mother's place of birth is cross-classified with home language (as in Table 1B) the pattern is closer to that which might be anticipated from a hypothesis of global ethnicity. In Table 1B, the percentage differences on home language pattern average about 15 percent between homes in which the mother was born in Puerto Rico versus those in which she was born elsewhere. This measurable but low association leaves matters unclear. Note that the association is quite high at grade 1, but this is suspect since a good deal of other evidence suggests that the teachers (who actually filled out the questionnaires for the first-graders) had a tendency to resolve all ambiguities in a manner consistent with other responses on the child's form. The data for grade 12 are probably the most accurate, and the moderate association at that grade supports the conclusion that there is a mixture of effects present here. The degree of association for both 1A and 1B is quite low in grade 6. This variation from grade to grade in degree of association, and the fact that the association is lowest at the earliest grade (i.e. grade 6) where students were entirely on their own in filling out the questionnaire,[11] indicates that response error is probably present, and probably most serious at this grade.

The item on the questionnaire dealing with language used by the child himself was phrased as follows: "Do you speak a language other than English outside of school?" For grades 1, 3, and 6 the response possibilities were "yes" and "no"; for grades 9 and 12 there were four response possibilities: "yes, frequently," "yes, occasionally," "yes, rarely," and "no." In the analysis the four responses at grades 9 and 12 have been lumped into two sets of two each, in a manner that seemed most consistent with the marginals in grades 3 and 6.[12] Table 2 presents, for various pairs of items, and each grade, the values of phi/phi-max,[13] thus indicating the strength of the relationships between the various pairs.

(Table 2 about here)

As Table 2 shows, the association between home language and personal language is between .28 and .43 for all grades except grade 1, in which it is .90. This extremely high association at grade 1 should probably be regarded as another manifestation of the tendency toward consistency among the teachers who filled out the questionnaire, although it can be argued that the preschool child is much more restricted to family members for his interpersonal contacts than is the child of school age, in which case the observed association would reflect this fact.

For all the pairs of items presented in Table 2, the same general pattern of variation from grade to grade in degree of

association is observed. The magnitude of the association is (except for grade 1) almost always highest at grade 12, and low in grades 3, 6, and sometimes 9. These differences between the grades are consistent with a response error interpretation and are difficult to explain substantively, since the expectation would be that external influences on language would increase as the child grew older, thus tending to reduce the associations at the upper grades. Nevertheless, part of the explanation may simply be a lack of sensitivity of the questions, or may reflect actual patterns whose cause we have not recognized.

Although it seems reasonable to regard the home language and personal language as distinct, it still might be worthwhile to control for the personal language pattern to eliminate any possibility of confounding with the home language pattern. There is also the possibility of an interactive effect between the two variables, owing perhaps to the effect of a harmonious or non-harmonious situation within the family with respect to language use. Unfortunately here again the imprecision of the questions makes any pursuit of explanation futile.

At this point, the preliminary conclusion must be that this set of data does indeed suffer somewhat from a response error bias. Assuming, however, that this response error is not extreme, and using especially the grade 12 associations, the impression is that among these New York City Puerto Rican schoolchildren there is not a global cluster of attributes reflecting ethnicity. Rather, each person seems to possess some ethnic traits, but few possess all or none of these traits.

Thus, for the sake of simplicity, the major portion of the subsequent analysis will use the single question about home language pattern as the independent classificatory variable.

LANGUAGE AND ACADEMIC PERFORMANCE

Table 3 presents the average verbal test scores of the Puerto Rican children from Spanish-English homes (hereafter referred to as S-Es) and those of Puerto Rican children from English-only homes (hereafter referred to as E-Os).

(Table 3 about here)

These scores are scaled scores for grades 6, 9, and 12,[14] and are the number of test items correct for grades 1 and 3. The verbal ability test-actually a vocabulary test -- was used as the measure of academic performance for two reasons. One reason is simply the argument presented in the original EOEO report[15] which showed that this test, of the four administered, best reflected the effects of the schools, and correlated most highly with the other tests. A second point is that the vocabulary test has the most face validity in a study concerned with the effects of

linguistic environment. Moreover, the vocabulary test was one of only two tests employed in grade 1 (the other being a test of abstract reasoning).

As can be seen by an inspection of Table 3, students from S-E homes performed more poorly than those from E-O homes only at the grade 1 level. For grades 3,6,9, and 12, the average test scores of the S-Es were higher than those of the E-Os. This superiority of the S-Es at grades 3,6,9, and 12 is contrary to the common-sense expectation. At the sixth grade, the difference is statistically significant beyond .01, and is substantively large enough to deserve attention. The difference at the ninth grade is statistically significant, but small in terms of the total range of test scores. For grades 3 and 12, the differences are negligible in size.

Two of the variables previously mentioned as ethnic-linguistic identifiers are used as classificatory variables in Tables 4 and 5. Table 4 shows vocabulary test scores for students

(Table 4 about here)

whose personal language patterns either do or do not include a sizeable amount of Spanish. The students who use Spanish have lower test scores at grade 1, about the same (though very slightly higher) at grade 3, and moderately higher scores at grades 6, 9, and 12. The pattern for this table is thus generally similar to that for Table 3.

Table 5 presents test score differences, classified according to mother's place of birth.

(Table 5 about here)

In three of the four available grades, children whose mothers were born in Puerto Rico have slightly lower average test scores than children whose mothers were born elsewhere. At grade 6, however, the direction is reversed, and is consistent with the pattern of Tables 3 and 4. The difference at grade 6 is also the largest of the four.

In view of the fact that these three ethnicity items are relatively unassociated with each other, especially at grade 6, it is notable that for all three tables, the average vocabulary test score at grade 6 is higher among the students who are "more Puerto Rican" in their ethnic characteristics. The general pattern is that there is a small and negligible disadvantage for the S-Es at most of the grades, and in fact an actual superiority for them at grade 6. Before attempting to explain such a pattern, it is necessary to be sure, so far as the data permit, that the observed differences in test scores are not accounted for by dif-

ferences in other home environment characteristics of the S-Es as opposed to the E-Os. This possibility is examined in the next section.

CONTROLLING HOME BACKGROUND VARIABLES

Perhaps the most obvious variable to be considered as having a confounding effect is the sex of the student. Lavin,[16] as well as others, has noted that girls generally perform better than boys on academic tests, other things being equal. Accordingly, we checked the percentage of boys and girls among the S-Es and the E-Os at each grade. The results are presented in Table 6A. The percent male in the two groups is almost the same, except at grade 1, where the S-Es are only 44% male and the E-Os are 62% male. At grade 6, the S-Es are only 51.5% male, while the E-Os are 56% male, a fairly small but not negligible difference. Assuming the generally lower scores of males, these differences in sex composition tend to account for the smallness of the disadvantage for S-Es at grade 1, and their higher average scores at grade 6.

A variable which upon first consideration may not appear relevant to the present analysis is the response made by these children to the question on race. In fact, however, the design of the questionnaires, as well as substantive considerations, suggest that it is relevant. Since the question on race appeared on

(Table 6 about here)

each questionnaire prior to the one on Puerto Rican ethnicity, many students probably answered it without knowing that they would afterwards be offered a chance to identify themselves as Puerto Ricans. We can reasonably assume that if a given respondent checks either American Indian or Oriental, and also Puerto Rican, he is probably making a response error on at least one of those two questions. If a respondent checks both Negro and Puerto Rican, this can be taken to indicate either (1) probable response error on one of the questions, or (2) evidence of at least some identification with the Negro ethnicity. Under either of these conditions we should be inclined to predict a lower test score for such a child than for one who showed no evidence of response error, or of identification with the Negro group. The actual distributions of responses to the racial question are presented in Table 6B. Note that the percentage of respondents checking White or Other is higher at every grade among the S-Es. Once again it is impossible to distinguish clearly the possibility of response error from that of lack of ethnic identification, but it seems safe to say that one of these is operating more strongly on the E-Os than on the S-Es. Thus in either case there is a depressing influence on the test scores of the E-Os.

Another item similar to the racial item is that on Mexican-

American ethnicity, which was asked separately[17] at grades 1, 3, and 6. This item is probably a fairly sure indicator of response error, since the likelihood of actual Mexican-American ethnicity in New York City is remote. We must expect negligible response error at grade 1, since the teachers filled out the questionnaires. At grades 3 and 6, the E-Os were slightly more likely to answer this question erroneously or leave it blank than were the S-Es. Incidentally, a truly Mexican-American child would be likely to also be truly an S-E, and so the excess in the E-O category in this case is especially strong indication of an error in responding to the language question, or else of confusion about one's own ethnicity.

The next several tables deal with the distribution of sets of items which serve as indicators of various aspects of a child's home environment. These include (a) the structure and stability of his family, (b) the number of appliances they possess, (c) their orientation toward reading, and (d) their orientation toward education. The items are tabulated in groups corresponding to these clusters.

The first group of items includes five questions relating to family structure and stability. These are (1) number of people in the home, (6 or fewer is classified as small family) (2) who acts as the father, (3) who acts as the mother, (4) does the mother work, and (5) how many changes of schools (0 or 1 is classified as few). Each of the items is treated as a dichotomy. Blanks and "don't knows" are included in the less favorable category, since a lack of information is more likely to indicate an undesirable rather than a desirable situation. Table 7 presents the distributions on each of these five items for the S-Es and the E-Os. Looking at the grades together, it is clear that the S-Es generally have a more desirable family structure. Of 20 differences between the S-Es and E-Os which are greater than 1%, the S-Es are higher on 17, and 2 of the 3 reversals are for no more than 2%.

(Table 7 about here)

Treating each item as equally important, the grade 6 E-Os appear especially disadvantaged relative to the corresponding S-Es. The real mother is least often present among the E-Os of grade 6, and the difference between the S-Es and E-Os on this item is large at this grade. This series of items provides a further partial explanation for the differences in test scores between the S-Es and the E-Os.

A second series of items which provides information about the style of life of the families is presented in Table 8. The items are concerned with ownership of the following appliances: (1) tele-

(Table 8 about here)

vision, (2) telephone, (3) record player, (4) refrigerator, (5) vacuum cleaner. On this series of items, it seems that at grade 1 the

E-Os are higher than the S-Es (which is surprising in view of the small advantages of the E-Os in test scores); but the S-Es clearly have better conditions than the E-Os at grades 3 and 6, slightly better at grade 9, and perhaps slightly poorer at grade 12. Except at grade 1, this pattern is quite consistent with the differences in average test score. It is also worth mentioning that the grade 12 families are generally in possession of more appliances than the families of students in the lower grades. This can be regarded as indirect evidence for a process of selective retention of academically teachable students. If the response error hypothesis is correct, this selectivity should tend to improve the quality of the grade 12 data, and also to reduce any differences which are due to response error bias. With regard to the unexpected pattern at grade 1, one possibility is that at this grade the S-Es may be unfamiliar with English nomenclature and may consequently deny some appliances which the family actually has.

A third series of items is presented in Table 9. This series

(Table 9 about here)

consists of items about various reading materials and habits. The items include; (1) ownership of dictionary, (2) ownership of encyclopedia, (3) having a daily newspaper at home, (4) whether anyone at home read to the child before he began school (this question was not asked at grade 1). The pattern of the responses among these items is not clear. The percentages at grades 1 and 3 are fairly close to each other. At grades 6 and 9, the S-Es are higher on possession of a dictionary and encyclopedia, but not as high on being read to by their parents. At grade 12, the S-Es are lower on being read to by their parents than are the E-Os, and the percentages on the other items are similar for both groups. On these items as on the items about appliances, the grade 12 respondents of both classifications have a higher proportion possessing the items than do the other grades, which tends to confirm the difference in typical background between grade 12 and the lower grades.

Table 10 presents the last of these series of items. This cluster includes some items whose significance at the upper grades is

(Table 10 about here)

difficult to interpret. For grades 3, 6, 9, and 12, the items are: (1) father's education, (2) mother's education, and for grades 6,9, and 12 only, (3) how good a student your mother wishes you to be, (4) how good a student your father wants you to be, and (5) how often you and your parents discuss school. The items about parents' education clearly favor the E-Os at each grade, which is consistent with the idea of a home in which only English is spoken, but hardly consistent with the generally lower test scores of the E-O students. The remaining items in this group can be viewed not only as determinants but also as consequences of the child's school achievement,

and so must be interpreted cautiously. In any case, at grade 6, there is a difference in favor of the E-Os, and the absolute value of the percentages is higher at this grade than at the later grades. Grades 9 and 12 show no important differences between the S-Es and the E-Os.

All in all then, using these four series of items to indicate the family background characteristics of the children, the general conclusion is that the observed pattern of differences in test scores, i. e., the small handicap of the S-Es at grade 1, and their actual superiority at grade 6, can be accounted for to a considerable extent by the generally more impoverished home environments from which the E-Os come. There are some inconsistencies, but not too many, and some of these have specific explanations which are quite plausible. One general trend in the background conditions of the two categories (S-Es and E-Os) is that the S-Es generally have families which are more stable and materially affluent, but less favorably oriented toward education, than those of the E-Os.

At this point a preliminary answer can be given, with all the usual qualifications about the limitations of survey research in general and this study in particular, to the question about the effect of home language pattern on academic performance. We have been able to find no clearcut effect, except perhaps a moderate one at the grade 1 level. The variable of home language pattern is sufficiently confounded with other aspects of the home environment in our sample so as to preclude any truly sensitive test. With this limitation in mind, it can be said that the only differences in test scores which we could find seem attributable to general family characteristics rather than language pattern itself. This is an unexpected finding, and one whose potential significance is considerable. The final section will discuss some possible interpretations for this finding.

FURTHER EXAMINATION OF RESPONSE ERROR

Several additional procedures were carried out in an effort to shed some light on the presence or absence of response error. The first of these is a comparison of the shapes of the distributions of test scores, for the S-Es and for the E-Os at each grade level.

The reasoning is that if there actually were a sizeable proportion of children among the E-Os who are prone to response error, then these students would have a distribution of test scores with a very low average. The remainder of the E-Os would have a distribution with a higher average. Thus, the composite of both of these distributions would have two distinct peaks -- a bimodality. Therefore, the hypothesis is that there will be a bimodal distribution of test scores among the E-Os, but not among the S-Es, since the E-Os are assumed to be more seriously affected by response error. Thus, this procedure is capable of distinguishing the presence of

response error, provided its effects are strong enough, from a simple difference in the mean of the two distributions.

The percentaged frequency distributions for each grade, using scores grouped into 14 levels, are shown in Figures 1 through 5. These graphs have two noteworthy characteristics. The first is that there is a clear bimodality of shape among the E-Os for each grade except grade 9, and no bimodality for the S-Es at any grade. The second characteristic appears only at grades 6, 9, and 12. This is that the distributions have a long upper tail, for both S-Es and E-Os. This skewness can be explained in light of the fact that the overall average score on these tests was considerably lower among Puerto Ricans than for the entire sample, including all the ethnic groups studied. The long upper tail thus simply reflects the fact that there are some Puerto Ricans who do as well on the tests as non-Puerto Ricans generally do.

A second procedure was to tabulate for each respondent the number of blanks in his questionnaire. This could then be used as a rough indicator of the quality of the data provided by each respondent. The prediction was that the E-Os would have a larger average number of blanks and a stronger correlation between number of blanks and test score, than would the S-Es. If a response error bias is operating among the E-Os, and if number of blanks is a

(Figures 1 through 5 about here)

valid indicator of susceptibility to response error, then the two predictions should be verified. There are, however, two possible alternative assumptions which would negate this approach. One is that number of blanks is a corollary of any low test score, not of response error tendency. A second possibility might be that the number of blanks indicates the opposite of response error tendency. A large number of blanks can be viewed as <u>a priori</u> evidence that this is a person who says nothing unless he is sure, and so there can be great confidence in the responses that he did make.

The data are presented in Table 11. In general, there is no difference either in number of blanks or in correlations between the groups. The difference in the correlation is in the predicted direction in four of the five grades, but is quite small at grades 3 and 6. The difference in the number of blanks is in the predicted direction for grades 3, 6, and 9, but is not large enough to be conclusive. No firm conclusion can be drawn from this table.

(Table 11 about here)

One further procedure was also tried. In an effort to highlight whatever processes were operating, the upper and lower quartiles of the S-Es and the upper and lower quartiles of the E-Os, as determined by vocabulary test scores, were separately

analyzed. This procedure approximates a deviant case analysis. Like the previous approach, this one is imprecise, but yet worth executing as a guide. The following paragraphs discuss the findings from this portion of the analysis.

It should be noted at the outset that for some of the columns, the number of cases was small -- as few as 7 for the grade 1 E-Os. Thus, to be significant, a difference will have to be quite large. The number of cases is indicated in each table.

Among the items in the family structure and stability series (see Table 12), the one concerning whether or not the mother works showed no clear relationship to test scores, and so will not be discussed further. On the other items, the pattern is not

(Table 12 about here)

completely clear, but in general the expected relationships between background items and test scores do appear and are stronger at grade 6. It also appears that the E-Os are more affected by the quality of their backgrounds than are the S-Es.

On the style of life items (see Table 13), the impression is

(Table 13 about here)

that possession of the various appliances is a good indicator of test scores. Perhaps the most notable thing here is the unusually low level of the style of life items among the grade 6 E-Os in the low quartile. Again it seems that the relationship between these items and test score is stronger for the E-Os than for the S-Es, especially at grade 6.

The items about reading materials are generally quite straightforward (see Table 14). There does not seem to be any difference in

(Table 14 about here)

the strength of the relationship between items and test scores when the S-Es are compared to the E-Os. There are, however, strong relations between each of the items and test score. The overall level of the E-Os on these items is lower than that of the S-Es, especially at grade 6.

The last series of items, those relating to education directly, (see Table 15) shows a closer relationship between background and test performance among the E-Os than among the S-Es. This is once again clearest at grade 6. One unexpected finding here is that at grades 9 and 12 the E-Os tend to have better educated parents than do the S-Es.

Having carried out this last procedure, it can be asked what

(Table 15 about here)

has been gained from it. The reply would be -- reassurance that most of the items did have the anticipated relation to test scores; but unfortunately there is no new insight as to the dynamic mechanisms which might be operative. Two general trends seem to be present: (1) low scoring E-Os generally have poorer backgrounds than do low scoring S-Es; and (2) the relationship between background and test score appears to be somewhat stronger for the E-Os than for S-Es. Thus there is an interactive effect of language and home environment on achievement, though not extremely pronounced. It might be concluded that the lower average test scores, especially at grade 6, are due to the fact that the distribution of background characteristics among the E-Os has a bottom considerably lower than that among the S-Es, although the upper ranges of the two distributions are similar.

The above is consistent with the finding of a bimodal test score distribution among the E-Os but not among the S-Es. It is also indicative of response error bias, by the argument that the apparently very low status individuals are simply those who made another response error in telling, for example, whether they have a refrigerator, or by the alternative reasoning that it is children from the very impoverished homes who are most likely to make an error on the ethnicity or language questions.

DISCUSSION

Despite efforts made to eliminate interpretative difficulties arising from response error bias, it is clear that some such bias remains. Unfortunately, the direction of the distortion introduced by this bias is consistent with the differences between the "common-sense" expectations about performances on the vocabulary test and the patterns actually found.

Thus, in this instance it is impossible to estimate the relative contributions of (1) distortion due to response error, and (2) actual equality of vocabulary skills, in producing the observed configurations. Yet, some conclusions can be drawn. First of all, since the observed pattern, after allowing for certain differences in background characteristics, is that Puerto Rican children from Spanish speaking homes score about as well as Puerto Rican children from English speaking homes, any true but concealed differences in the vocabulary skills of the two groups cannot be larger than the distortion due to response error. This brings us to a choice between two conclusions. If one asserts that there are indeed sizeable differences in vocabulary skills between the S-Es and the E-Os, then he must conclude that the amount of response error, even in this reanalysis, is also considerable. On the other hand, if one asserts that the response error is not large (by some standards), then it must be concluded also that the true differences in test scores would not be large.

Adopting the first choice creates serious doubts about the adequacy of the entire EOEO survey data, especially that for the smaller minority groups. Indeed, it raises questions about any similar survey data collected from disadvantaged elementary school pupils. Acceptance of the second choice raises the question as to why the common sense expectation is not confirmed.

One possibility along these lines is as follows: Although linguistic differences are indeed a handicap to the child who because of them does not comprehend the events taking place around him, this handicap quite quickly disappears as the child learns the new language. The ease of learning in this case, unlike the more general situation in which the teaching of the disadvantaged child poses a number of difficulties, arises from the fact that the handicap is one whose impact on both child and school system is recognized by both the child and the school system. Thus, it is dealt with on a matter of fact basis; the child seeks to learn, and his teachers expect him to learn. In trying to master the new language, the child suffers (through the nature of the situation, not through punishment or disapproval) when he is unable to express himself in English, and benefits when he is able to use English effectively. Both the suffering and the benefits are immediate and consistent. Thus, the child learns quickly. This sort of a model for the learning which takes place in schools, one which places stress on the rewards to both teacher and pupils for engaging in a learning dialogue, has been suggested by James Coleman in several papers dealing with social exchange.[18]

To the extent that these data indicate actual equality of test scores, and to the extent that something like the foregoing explanation is justified, it is important to undertake more thorough study of these phenomena as an approach to the more general study of the learning which children experience in what are conventionally regarded as disadvantaged environments. Thus, attention is drawn not only to the difficulty in teaching the traditional academic subjects, but also to the kinds of facts, lore and strategies which are learned in these situations.

On the other hand, to the extent that these data are permeated with response error, there is need to re-examine the conclusions of the EOEO study, and others as well which use similar data, to discover which are most likely to be the result of similar distortions, and to develop a methodology of design and analysis which will permit the reduction and more exact assessment of such error.

While the present analysis has not been able to settle these issues, it is believed that there is value in drawing attention to them with such a tantalizing example.

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FOOTNOTES

1. James S. Coleman et al., Equality of Educational Opportunity, U. S. Dept. of Health, Education, and Welfare, Office of Education, Supt. of Documents Cat. #FS5.238.38001, (U.S.Govt. Printing Office, Washington, D. C., 1966).

2. Ibid., pp. 220-273. See especially Ibid., p. 20, Table 9.

3. Ibid., pp. 296-297.

4. The tables presented in this paper, especially Tables 12 through 15, provide one source of support for the statement that Puerto Ricans are typically not affluent. Also, see Oscar Lewis, La Vida, (New York, Random House, 1966).

5. For such an observation for Mexican Americans, see Celia S. Heller, Mexican American Youth: Forgotten Youth at the Crossroads, (New York, Random House, 1966).

6. But for some recent arguments which suggest the contrary viewpoint, see Elizabeth Peal and Wallace Lambert, "The Relation of Bilingualism to Intelligence," Psychological Monographs: General and Applied, #546, November 1962, or Leonard Kosinski, "A New Look at the Bilingual Student, "Scholastic Teacher, October 4, 1963, p. 14-T.

7. Coleman et al., op. cit., p. 300

8. Two such possibilities which have been suggested are that the child who is of another Latin American ethnicity may have been trained to identify himself as a Puerto Rican, since as such he automatically has United States citizenship. Alternatively, there is, especially in New York, the possibility that a child is of mixed ethnicity.

9. Inspection of the bases in Table 3 will indicate that there is indeed a heavy majority of the sample responding "yes" to this question at each grade.

10. For reasons unknown to this writer, mother's place of birth was not asked at grade 3.

11. At grade 1, the teachers filled out the questionnaires for each child. At grade 3, children filled out their own questionnaires, but with very detailed guidance by the teacher. At grades 6, 9, and 12, the students were given initial instructions and then left to work individually.

12. The response percentages, before collapsing at the upper grades, were:

	Grade 1	Grade 3	Grade 6	Grade 9	Grade 12
y,f	71.2	66.1	65.5	36.4	50.1
y,o				21.9	26.7
y,r	9.9	27.3	25.9	21.4	13.5
n				17.4	8.8

13. The number of cases varies form pair to pair, depending upon the number of respondents whose answers to both items in the pair are usable.

14. The scaling was done at Educational Testing Service, before the data became available to the author. It represents an attempt to make scores at grades 6, 9, and 12 comparable.

15. Coleman et al., op. cit., pp. 292-295.

16. D. Lavin, The Prediction of Academic Performance: A Theoretical Analysis and Review of Research (New York, Russell Sage Foundation, 1965).

17. At grades 9 and 12, there was a single question which asked if the respondent was Mexican American, Puerto Rican, or neither of these.

18. See James S. Coleman, The Social System of the High School and the Game of Adolescence, (paper presented at the Conference on Simulated Environments, I. B. M., Yorktown Heights, N. Y., June 1962) and James S. Coleman, Individual Autonomy in Theories of Social Systems (mimeo, Johns Hopkins University, no date).

TABLE 1

Distribution of Home Language Patterns for (A) Child's Place of Birth; (B) Mother's Place of Birth

Place of Birth	Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
A.										
Child born Puerto Rico	81	0	188	46	283	105	929	145	383	33
	100%	0%	80%	20%	73%	27%	86%	14%	92%	8%
Child born elsewhere	348	32	540	130	472	153	946	169	247	60
	92%	8%	81%	19%	74%	26%	85%	15%	80%	20%
Total	429	32	728	176	710	258	1875	314	630	93
B.										
Mother born Puerto Rico	376	10	-	-	587	170	1422	188	483	47
	97%	3%	-	-	78%	22%	88%	12%	91%	9%
Mother born elsewhere	53	22	-	-	123	88	453	126	147	46
	71%	29%	-	-	58%	42%	78%	22%	76%	24%
Total	429	32	-	-	710	258	1875	314	630	93

TABLE 2

Phi/Phi-Max for Various Pairs of Ethnicity-Linguistic Items

$\frac{\text{phi}}{\text{phi-max}}$ =

Items	Grade 1 N=385	Grade 3 N=731	Grade 6 N=865	Grade 9 N=2009	Grade 12 N=706
you born-mother born	.06	--	.39	.76	.88
any spk.-mother born	.61	--	.18	.17	.31
any spk.-you born	.25	-.04	-.03	.05	.38
you spk.-mother born	.38	--	.26	.11	.24
you spk.-youborn	.19	.11	.12	.08	.30
you spk.-any spk.	.90	.28	.29	.41	.43
race-mother born	-.05	--	.22	.10	.29
race-you born	.25	-.02	.13	.10	.33
race-any spk.	.18	.16	.11	.09	.15
race-you spk.	.48	.15	.13	.12	.24

TABLE 3

Averages and Standard Deviations of Verbal Test Scores Each

Home Language Pattern

Verbal Test Scores

Does anyone in your home speak a language other than English most of the time?	Grade 1			Grade 3			Grade 6			Grade 9			Grade 12		
	Mean	S.D.	Base	Mean	S.D.	Base	Mean	S.D.	Base	Mean	S.D.	Base	Mean	S.D.	Base
S-E (Spanish-English)	14.090	5.025	429	13.818	3.332	728	238.964	8.290	710	256.617	11.532	1875	267.579	13.469	630
E-O (English-Only)	14.218	4.218	32	13.596	3.448	176	235.220	7.418	258	253.401	11.917	314	265.591	14.849	93
Approx. ratio diff/ std. dev.	-.026			.066			.46			.28			.15		

TABLE 4

Averages and Standard Deviations of Verbal Test Scores by

Child's Language Pattern

Verbal Test Scores

Do you speak a language other than English outside of school?	Grade 1			Grade 3			Grade 6			Grade 9			Grade 12		
	Mean	S.D.	Base	Mean	S.D.	Base	Mean	S.D.	Base	Mean	S.D.	Base	Mean	S.D.	Base
yes	13.631	4.953	366	13.832	3.342	652	238.544	8.299	678	257.576	12.039	1300	268.245	13.462	558
no	15.215	4.549	51	13.646	3.397	269	236.302	7.880	268	254.250	10.695	866	264.574	13.963	162
Approx. ratio diff/ std. dev.	-.32			.05			.27			.29			.27		

TABLE 5

Averages and Standard Deviations of Verbal Test Scores By

Mother's Place of Birth

Verbal Test Scores

Where was your mother born?	Grade 1			Grade 3			Grade 6			Grade 9			Grade 12		
	Mean	S.D.	Base	Mean	S.D.	Base	Mean	S.D.	Base	Mean	S.D.	Base	Mean	S.D.	Base
Puerto Rico	14.191	4.901	407	not available see footnote 10			238.372	7.916	779	255.729	11.524	1633	267.081	13.546	531
Someplace else	14.630	4.804	46				235.982	9.508	171	256.944	11.779	581	268.156	14.067	192
Don't know	14.566	4.666	30				234.717	7.304	46	254.705	12.352	17	255.666	9.666	3
Approx. ratio diff/ std. dev.	-.09						.28			-.10			-.08		

TABLE 6

Distribution of (A) Sex; (B) Race; and (C) Ethnicity Items for S-Es and E-Os

	Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
Sex and Race-Ethnicity	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
A.										
Male	.441	.625	.507	.506	.515	.562	.473	.449	.432	.473
Female	.559	.375	.493	.494	.482	.434	.527	.551	.568	.527
Base	429	32	722	174	708	257	1842	305	627	93
B.										
Negro	.033	.161	.092	.189	.050	.138	.037	.101	.026	.174
White	.746	.548	.720	.640	.655	.567	.615	.606	.720	.620
American Indian	.000	.000	.029	.061	.081	.063	.049	.047	.028	.043
Oriental	.000	.000	.015	.012	.038	.046	.041	.064	.037	.011
Other	.221	.290	.145	.098	.175	.188	.259	.182	.190	.152
Base	425	31	664	164	679	240	1770	297	617	92
C.										
Mexican American	.002	.031	.091	.136	.063	.089	--	--	--	--
Not Mexican American	.984	.969	.824	.722	.876	.837	--	--	--	--
Blank	.014	.000	.085	.142	.061	.074	--	--	--	--
Base	429	32	728	176	710	258	--	--	--	--

TABLE 7

Proportion of S-Es and of E-Os Giving Positive Response to Items About Family Structure and Stability

Family Structure and Stability Items	Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
Number of people-small	.616	.500	.514	.528	.543	.539	.638	.615	.722	.742
Real father present	.797	.625	.651	.619	.607	.523	.561	.564	.598	.570
Real mother present	.909	.875	.863	.807	.851	.748	.867	.799	.890	.828
Mother does not work	.583	.844	.647	.602	.654	.647	.598	.567	.597	.581
Few school changes	--	--	.680	.643	.538	.477	.441	.402	.465	.474

TABLE 8

Proportion of S-Es and of E-Os Giving Positive Response to Items About Style of Life

Style of Life Items	Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
Television	.832	.938	.912	.852	.899	.787	.945	.879	.946	.968
Telephone	.485	.438	.551	.534	.546	.550	.576	.554	.679	.742
Record Player	.566	.625	.821	.733	.820	.748	.878	.847	.932	.935
Refrigerator	.851	.938	.956	.915	.889	.771	.944	.885	.973	.968
Vacuum Cleaner	.324	.406	.390	.409	.369	.341	.346	.347	.403	.473

TABLE 9

Proportion of S-Es and of E-Os Giving Positive Response to Items About Orientation to Reading

Orientation to Reading	Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
Dictionary	.107	.125	.493	.460	.644	.558	.857	.787	.943	.892
Encyclopedia	.042	.063	.284	.290	.386	.310	.496	.424	.546	.559
Anyone read to you	--	--	.110	.136	.152	.178	.251	.267	.258	.376
Daily paper	.508	.594	.584	.540	.601	.570	.787	.768	.837	.882

TABLE 10

Proportion of S-Es and of E-Os Giving Positive Response to Items About Orientation Toward Education

Orientation Toward Education	Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
How good student mother wants	--	--	.728	.676	.652	.578	.522	.484	.511	.516
How good student father wants	--	--	.663	.614	.623	.558	.496	.490	.492	.516
How often parents discuss school	--	--			.475	.477	.479	.455	.379	.430
Father's education high	.002	.000*	.045	.168	.140	.172	.153	.203	.185	.270
Mother's education high	.005	.000*			.152	.194	.125	.191	.137	.237

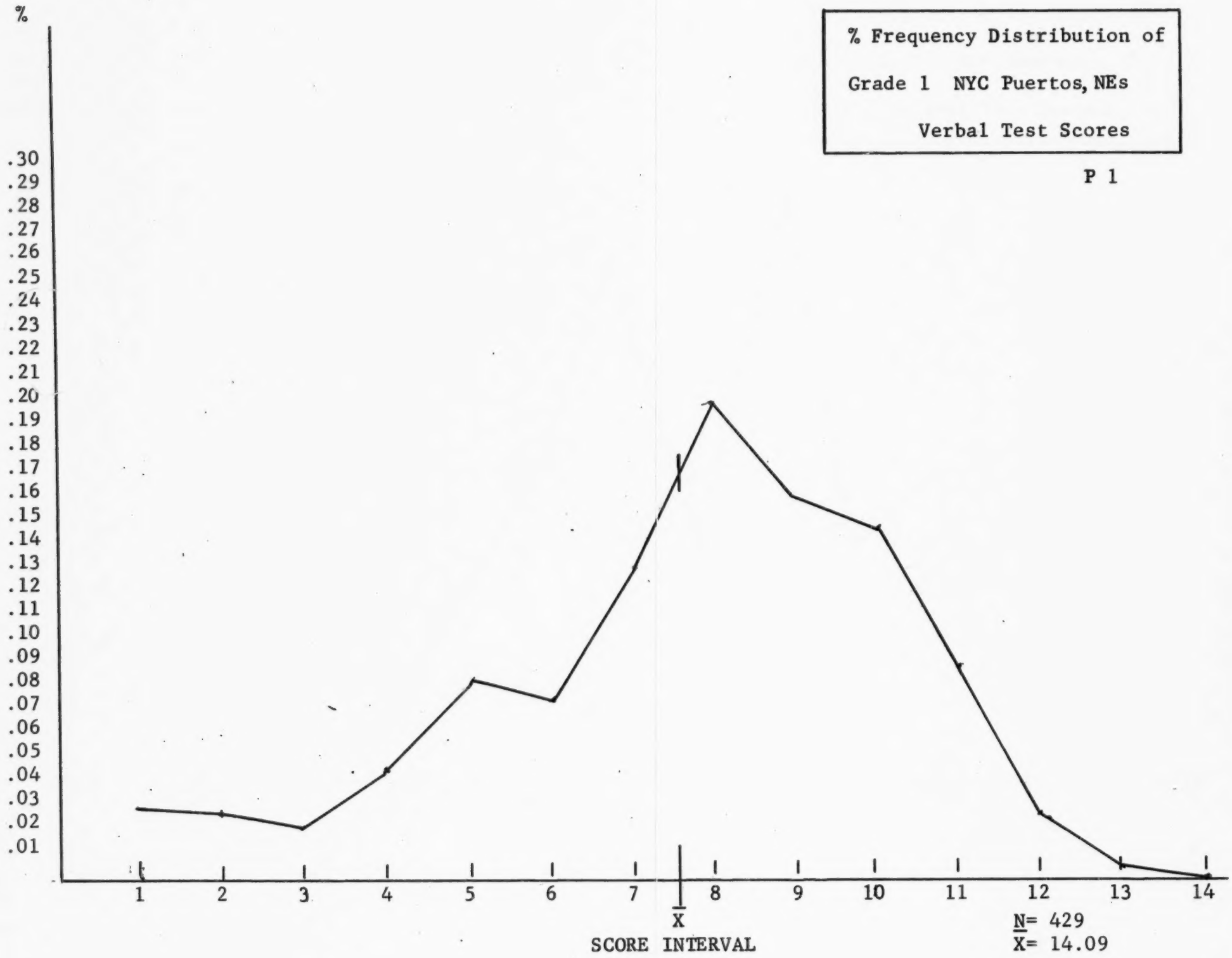
*There were very many blanks and don't knows in these cells.

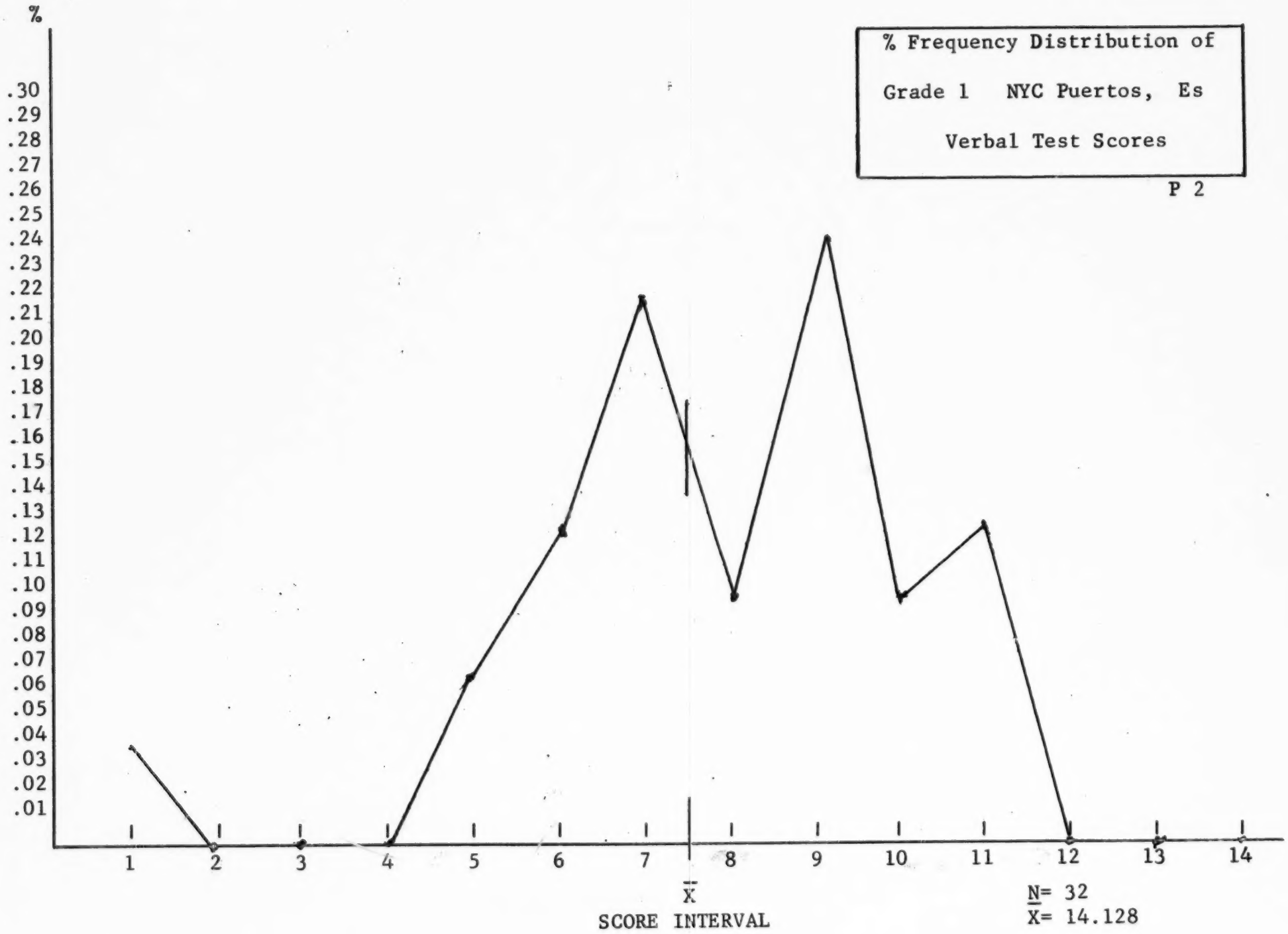
% Frequency Distribution of

Grade 1 NYC Puertos, NEs

Verbal Test Scores

P 1





% Frequency Distribution of

Grade 1 NYC Puertos, Es

Verbal Test Scores

P 2

N= 32

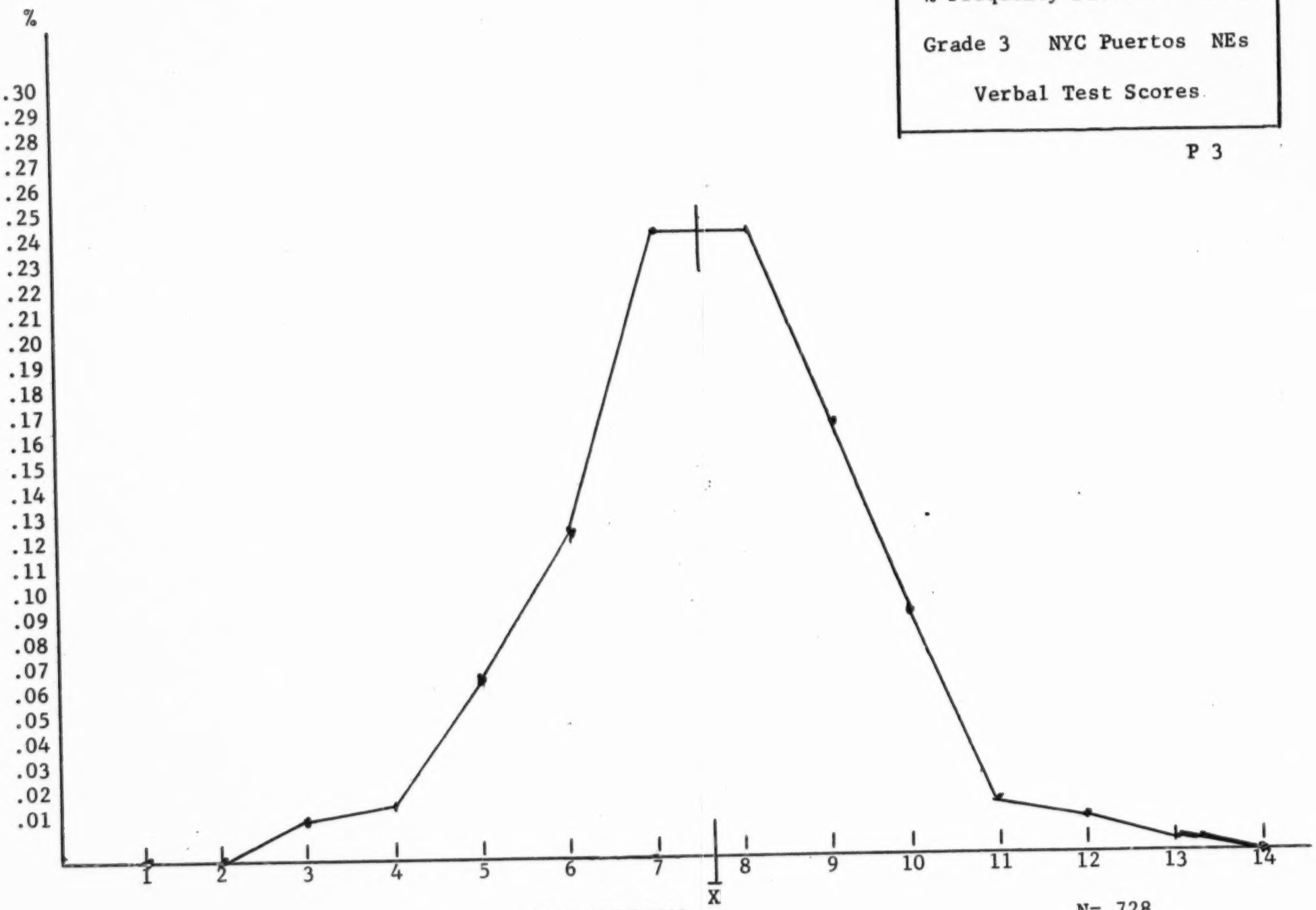
X̄= 14.128

% Frequency Distribution of

Grade 3 NYC Puertos NEs

Verbal Test Scores

P 3



N= 728

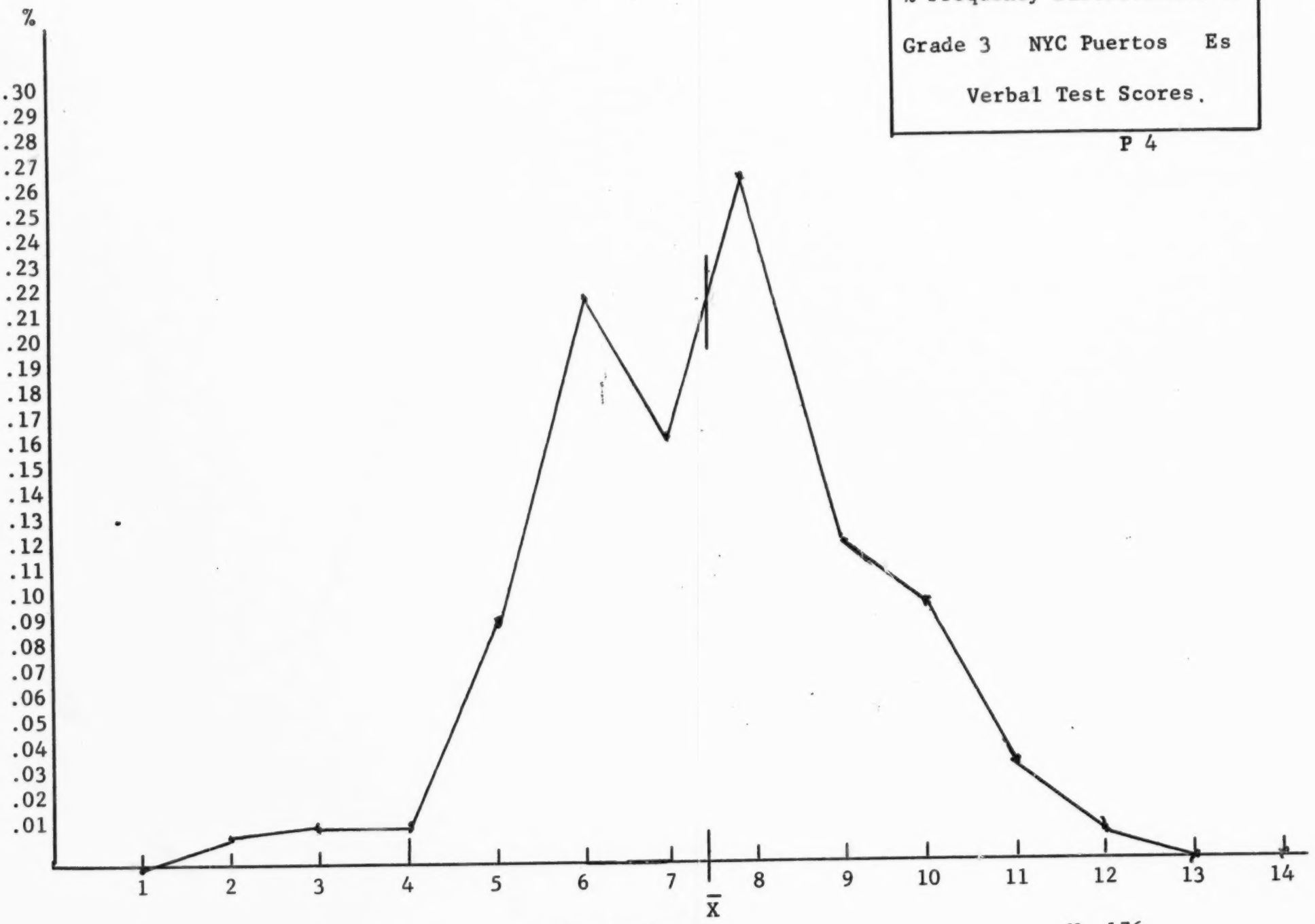
$\bar{X}$= 13.818

% Frequency Distribution of

Grade 3 NYC Puertos Es

Verbal Test Scores.

P 4



N= 176

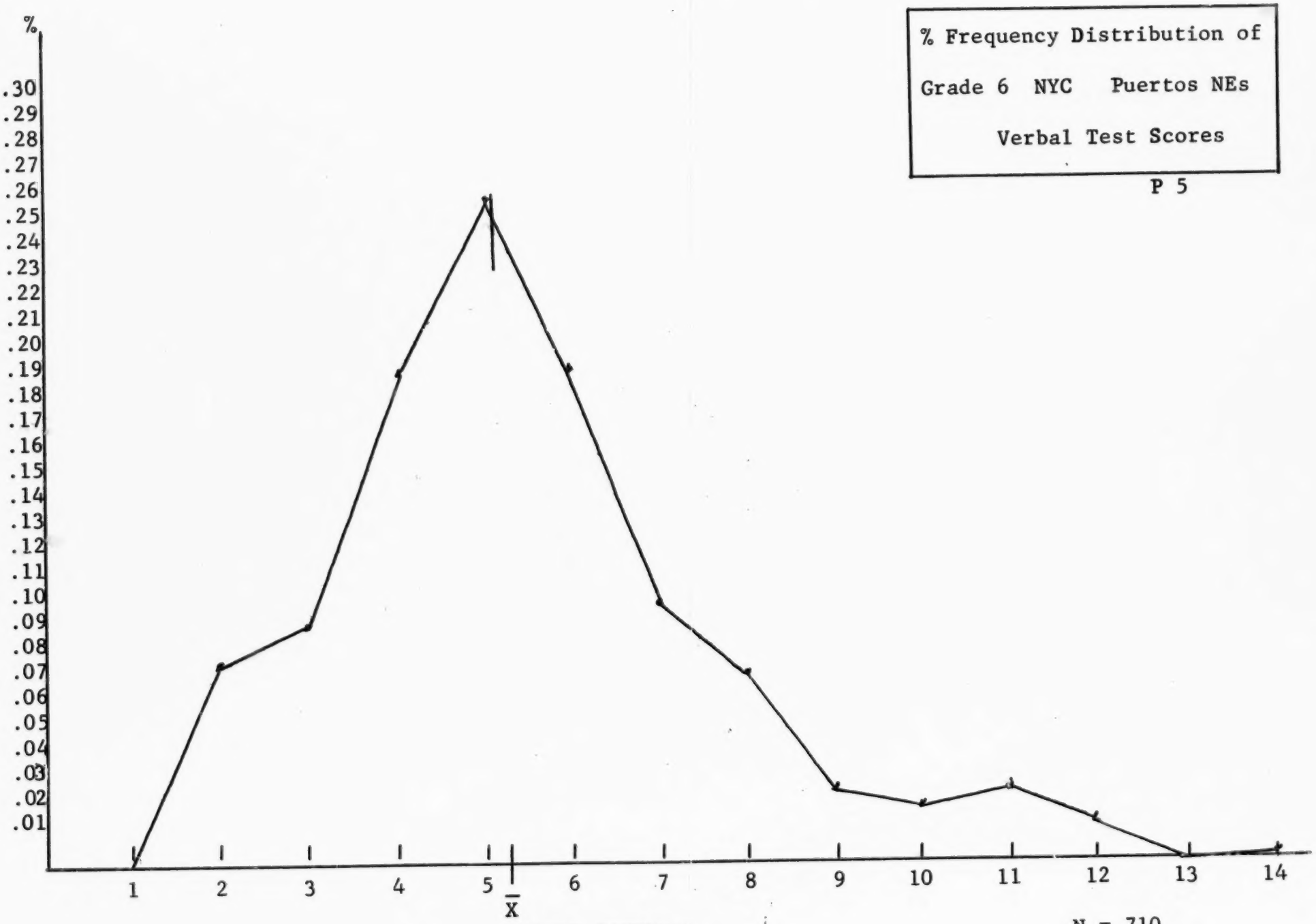
X̄= 13.596

% Frequency Distribution of

Grade 6 NYC Puertos NEs

Verbal Test Scores

P 5



N = 710

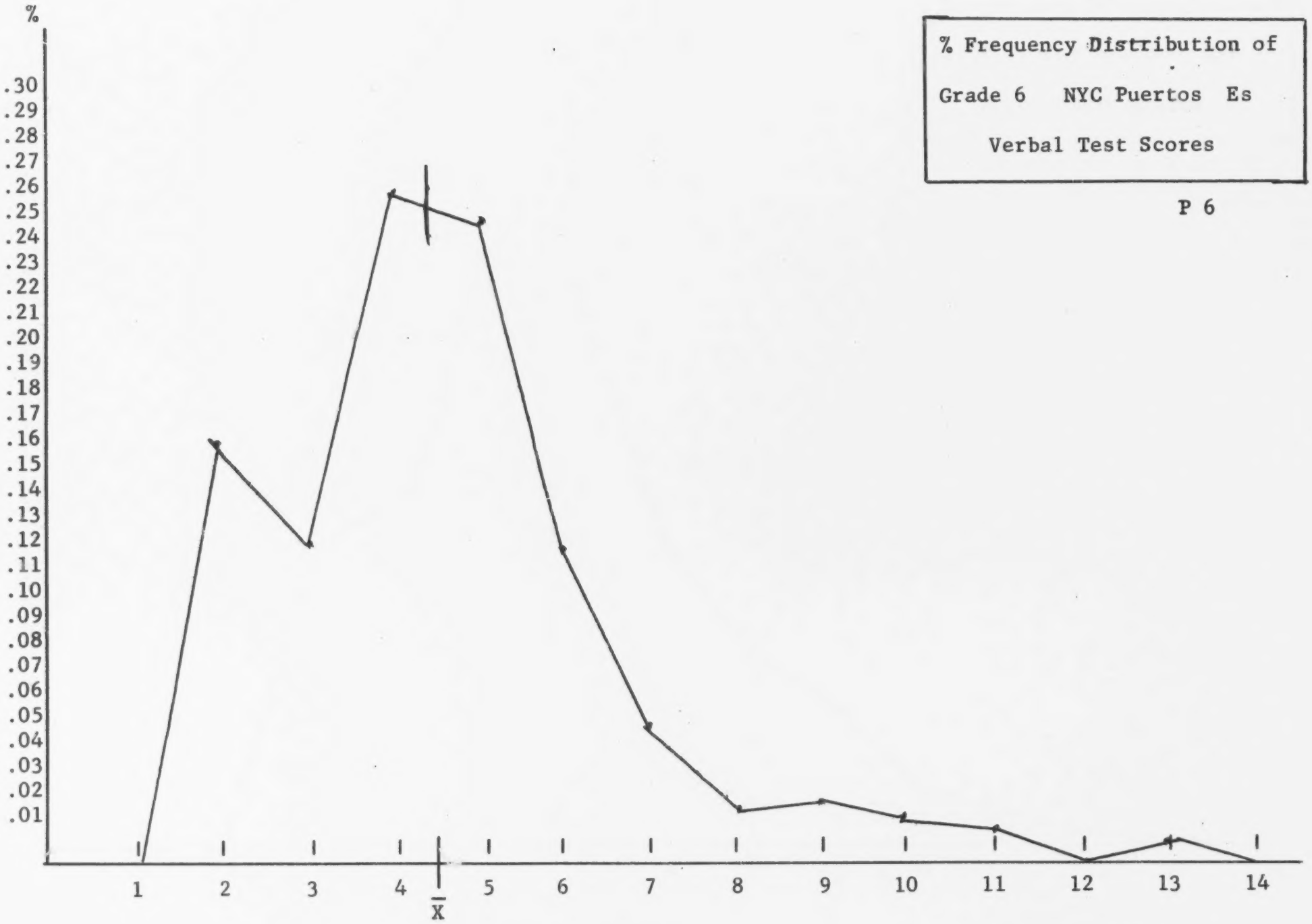
X̄ = 238.964

% Frequency Distribution of

Grade 6 NYC Puertos Es

Verbal Test Scores

P 6



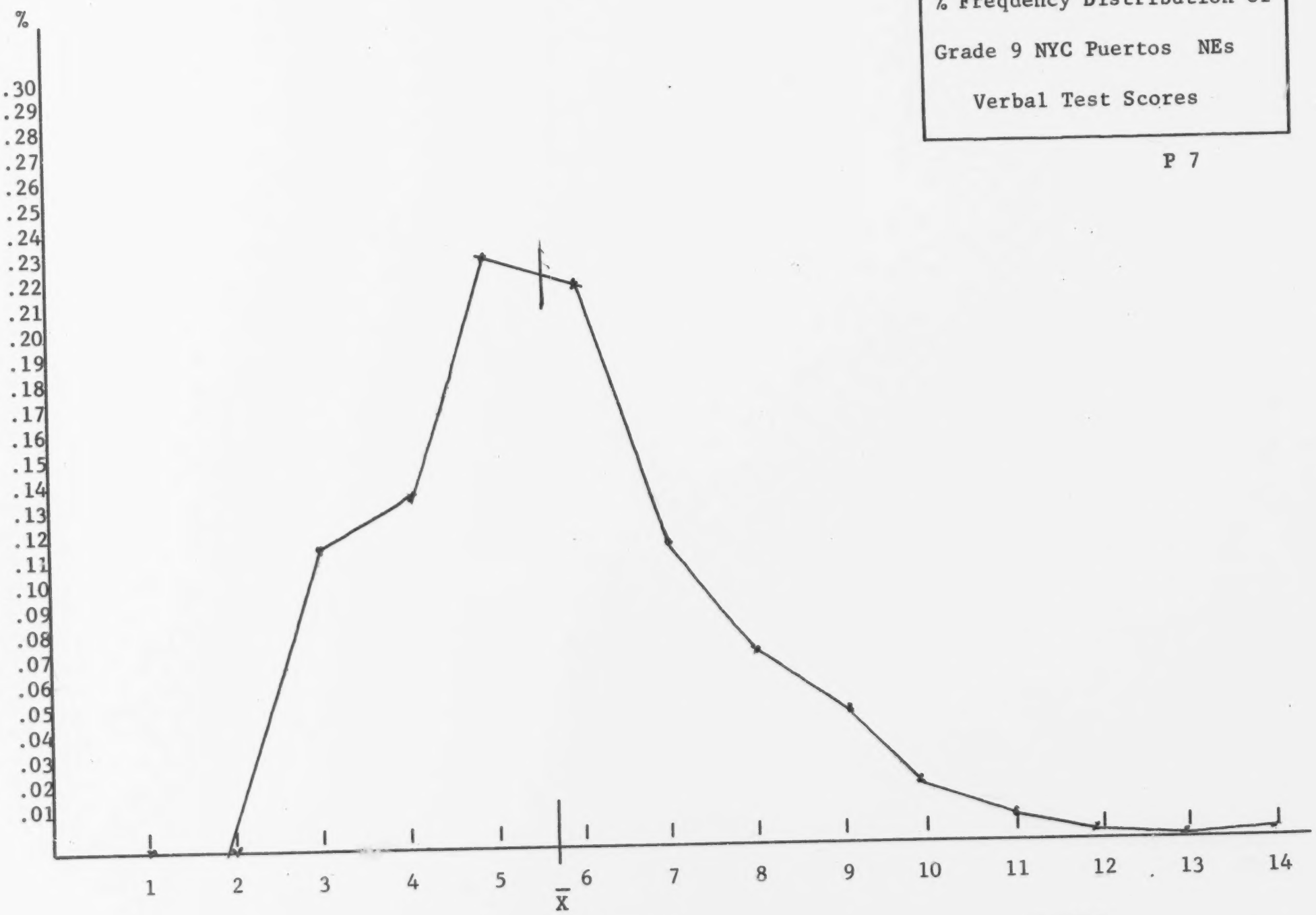
N = 258

X̄ = 235.220

% Frequency Distribution of

Grade 9 NYC Puertos NEs

Verbal Test Scores



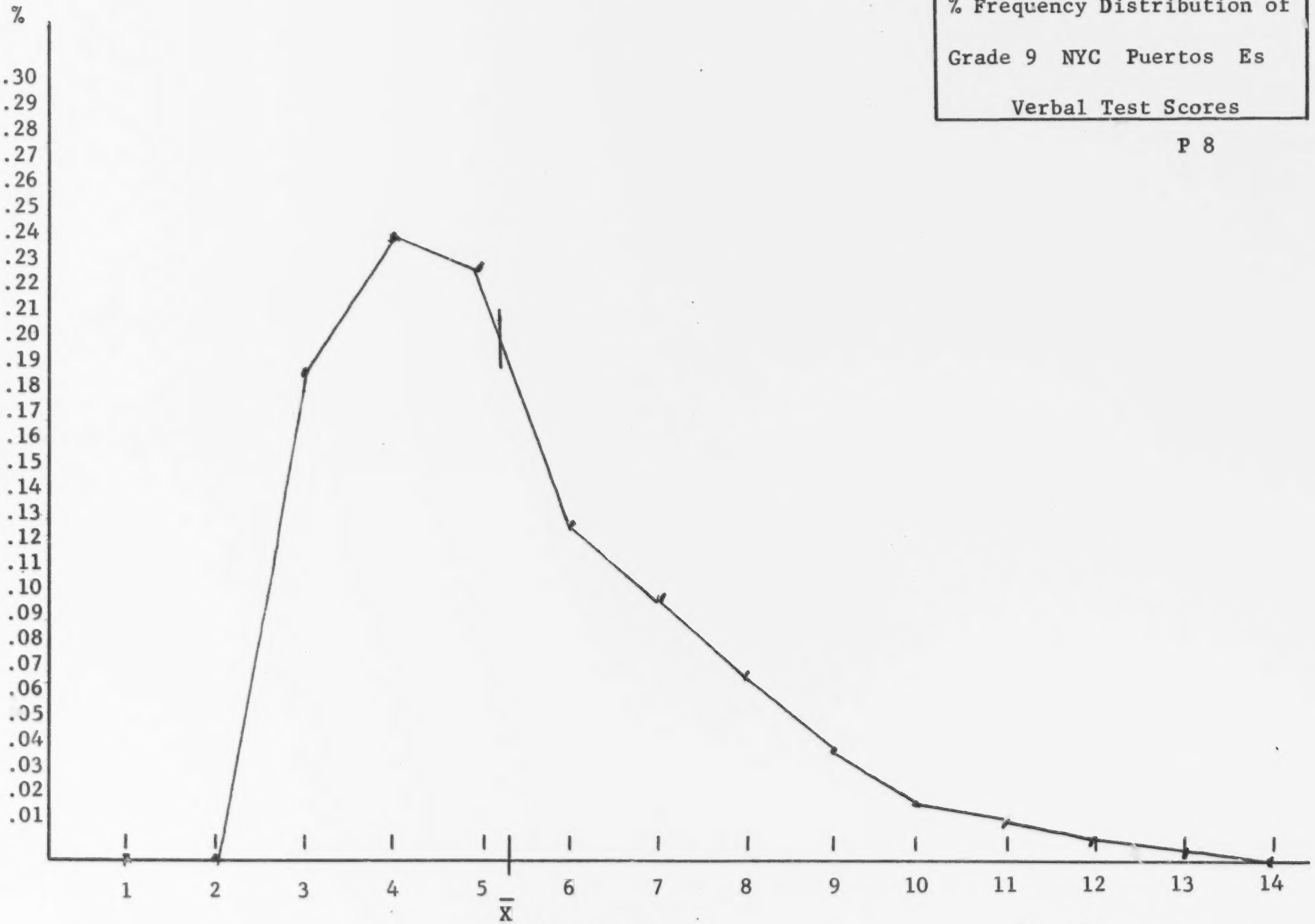
N = 1875

X̄ = 250.617

% Frequency Distribution of

Grade 9 NYC Puertos Es

Verbal Test Scores



N = 314

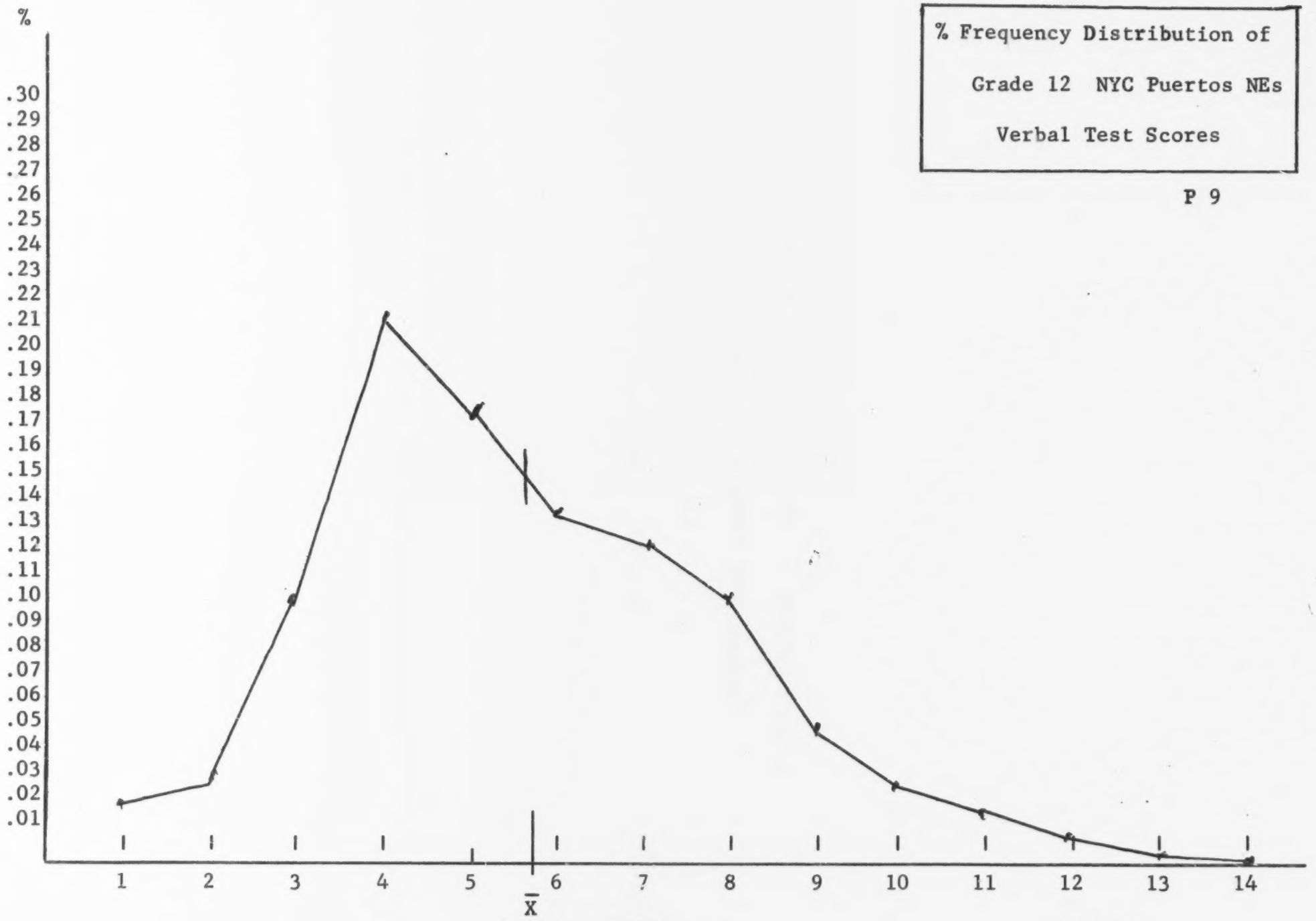
X̄ = 247.401

% Frequency Distribution of

Grade 12 NYC Puertos NEs

Verbal Test Scores

P 9



N = 630

X̄ = 250.58

AN EXPLORATORY STUDY OF NON-ENGLISH SPEAKING HOMES AND ACADEMIC PERFORMANCE*

by

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AN EXPLORATORY STUDY OF NON-ENGLISH SPEAKING HOMES AND ACADEMIC PERFORMANCE

ABSTRACT

Using data collected in a national survey, this analysis addresses two questions with respect to Puerto Rican public school pupils in New York City. First, what is the relationship between language spoken in the home and other aspects of ethnic background? Second, what differences are present at several grade levels in vocabulary test scores of Puerto Rican children from contrasting home language backgrounds?

The analysis is made more difficult by the apparent presence of a substantial amount of response error on certain important questions. Within this limitation, the general results are that home language pattern is not very closely linked with other attributes of Puerto Rican ethnicity, and that, after taking into account some confounding background variables, there is little difference between Spanish-English homes and English-only homes in the average vocabulary test scores of the children, except at grade 1.

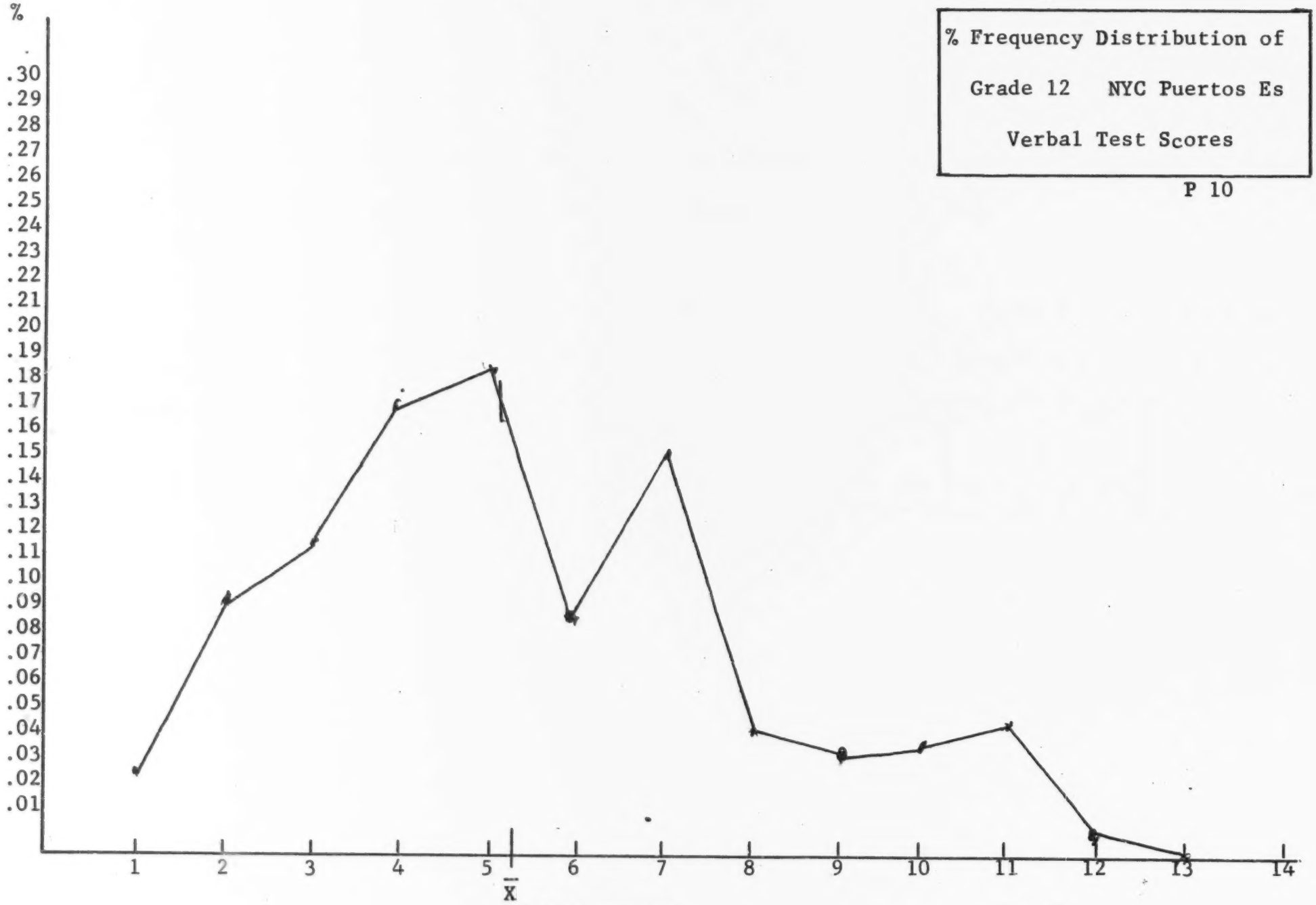
Some implications of the results are discussed.

% Frequency Distribution of

Grade 12 NYC Puertos Es

Verbal Test Scores

P 10



N = 93

X̄ = 248.591

TABLE 11

(A) Correlation Between Number of Blanks and Verbal Test Score (B) Average Number of Blanks - for S-Es and E-Os

	Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
A. Correlation between verbal and blanks	+.015	-.150	-.188	-.191	-.239	-.258	-.321	-.237	-.249	-.313
B. Average number of blanks	3.338	2.719	3.500	4.550	4.666	5.225	14.101	14.920	14.964	14.462

TABLE 12

Proportion of Upper Quartile (Hi) and Lower Quartile (Lo)

S-Es and E-Os Giving Positive Response to Items

About Family Structure and Stability

Family Structure and Stability Items		Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
		S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
Small family	Hi	.66	.43	.61	.65	.67	.60	.70	.74	.80	.78
	Lo	.54	.72	.47	.26	.54	.40	.61	.57	.62	.64
Real father present	Hi	.85	.71	.65	.72	.68	.51	.62	.50	.60	.61
	Lo	.73	.57	.62	.63	.49	.44	.54	.63	.56	.41
Real mother present	Hi	.89	1.00	.90	.78	.91	.86	.89	.82	.86	.91
	Lo	.93	.86	.83	.91	.72	.59	.84	.76	.88	.68
Mother does not work	Hi	.54	1.00	.63	.52	.62	.71	.56	.47	.47	.48
	Lo	.59	.57	.62	.63	.56	.56	.65	.59	.66	.46
Few changes of school	Hi	--	--	.71	.72	.65	.49	.48	.54	.38	.48
	Lo	--	--	.66	.60	.52	.48	.42	.35	.47	.50
Number of cases	Hi	108	7	215	46	164	55	487	78	161	23
	Lo	114	7	156	35	186	63	489	81	152	22

TABLE 13

Proportion of Upper Quartile (Hi) and Lower Quartile (Lo)

S-Es and E-Os Giving Positive Response to Items

About Style of Life

Style of Life Items		Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
		S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
Television	Hi	.84	.86	.95	.80	.96	.94	.97	.95	.98	.96
	Lo	.75	1.00	.87	.80	.82	.64	.91	.84	.91	1.00
Telephone	Hi	.49	.29	.57	.59	.61	.64	.68	.63	.74	.87
	Lo	.36	.29	.42	.43	.51	.44	.48	.56	.56	.68
Record player	Hi	.56	.43	.82	.67	.91	.84	.90	.92	.94	.96
	Lo	.45	.71	.79	.74	.74	.57	.81	.84	.90	.91
Refrigerator	Hi	.84	1.00	.98	.98	.99	.98	.98	.99	.99	1.00
	Lo	.81	.86	.92	.83	.76	.59	.86	.83	.93	.91
Vacuum cleaner	Hi	.30	.29	.32	.52	.48	.36	.40	.49	.53	.74
	Lo	.34	.43	.37	.26	.31	.30	.32	.32	.36	.36
Number of Cases	Hi	108	7	215	46	164	55	487	78	161	23
	Lo	114	7	156	35	186	63	489	81	152	22

TABLE 14

Proportion of Upper Quartile (Hi) and Lower Quartile (Lo)

S-Es and E-Os Giving Positive Response to Items

About Orientation to Reading

Orientation to Reading Items		Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
		S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
Dictionary	Hi	.11	14	.57	.61	.80	.74	.94	.90	.98	.96
	Lo	.08	.14	.35	.40	.49	.41	.76	.65	.91	.82
Encyclopedia	Hi	.04	.00	.34	.35	.58	.34	.60	.63	.66	.65
	Lo	.02	.14	.21	.26	.25	.24	.38	.30	.47	.27
Someone reads to you	Hi	--	--	.13	.11	.20	.16	.33	.49	.31	.48
	Lo	--	--	.09	.17	.13	.17	.19	.16	.19	.14
Daily paper	Hi	.57	.71	.55	.56	.68	.62	.82	.83	.86	.83
	Lo	.46	.57	.58	.49	.59	.38	.75	.70	.82	.91
Number of cases	Hi	108	7	215	46	164	55	487	78	161	23
	Lo	114	7	156	35	186	63	489	81	152	22

TABLE 15

Proportion of Upper Quartile (Hi) and Lower Quartile (Lo)

S-Es and E-Os Giving Positive Response to Items

About Orientation to Education

Orientation Toward Education Items		Grade 1		Grade 3		Grade 6		Grade 9		Grade 12	
		S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O	S-E	E-O
Mother wants top student	Hi	--	--	.79	.76	.72	.86	.69	.50	.55	.65
	Lo	--	--	.67	.63	.51	.35	.45	.43	.44	.59
Father wants top student	Hi	--	--	.72	.67	.65	.80	.66	.58	.54	.65
	Lo	--	--	.56	.54	.49	.36	.42	.48	.41	.46
Parents discuss school often	Hi	--	--	--	--	.51	.53	.52	.44	.35	.48
	Lo	--	--	--	--	.39	.38	.48	.38	.34	.36
High educated father	Hi	--	--	--	--	.15	.13	.19	.20	.23	.17
	Lo	--	--	--	--	.13	.11	.13	.16	.15	.36
High educated mother	Hi	--	--	--	--	.19	.20	.17	.32	.17	.43
	Lo	--	--	--	--	.15	.10	.08	.11	.10	.23